

硬件安装手册

非网管快速以太网交换机

IE-SW-ELB-05-5TX (订货号. 2828540000)

IE-SW-ELB-08-8TX (订货号. 2828550000)

1. 介绍

魏德米勒非网管快速以太网交换机系列采用紧凑型设计，尺寸小巧，易于安装。配用坚固的金属外壳，确保恶劣工业现场设备的可靠稳定通讯，同时为了防止意外的安全风险，请仔细阅读操作说明提供的所有安全信息说明以及随产品提供的任何其他安全信息。

2. 安全警示

	在移除电源连接之前，请确认关闭供电电源！
	设备在运行过程中会发热，进行任何工作时，请让装置冷却后操作或使用防护手套。
	设备只能连接到产品标签上显示的电源电压范围。高于规定的电压会损坏设备，设备必须由低压指令 2014/35/EU 中定义的电源供电。
	安装、调试和维护只能由合格的工程师进行。
	请遵守操作规范说明。
	<ul style="list-style-type: none"> 室内使用污染程度为2级，必须用干布擦拭以清洁设备和标签。 如果设备未按制造商规定的方式使用，则设备提供的保护可能会受损。 应安装在工业控制柜内，工作环境温度不超过60°C。

FCC合规性此设备符合FCC规则第15部分的规定。操作受以下两个条件限制：

(1) 此设备可能不会造成有害干扰，以及(2)此设备必须接受接收到的任何干扰，包括可能导致不期望操作的干扰。

使用说明：

该设备旨在实现工业环境中的网络通讯，其设计用于受限区域。设备只能在规定的技术数据范围内使用。设备需安装在具备良好接地的安装面上，如金属控制柜。任何超出范围的使用都可能导致意外故障和设备损坏，请遵守使用规范。

环境要求：

本设备只用于受限区域。

在规划安装现场时，确保运行期间的环境温度不会超过技术数据中给出的温度。同时确保气流不会受到其他设备的影响。

确保已安装和接线的设备不受任何机械应力的影响。

3. 包装清单

产品包装清单明细：

- 以太网交换机
- 本手册

联系信息

魏德米勒电联接(上海)有限公司

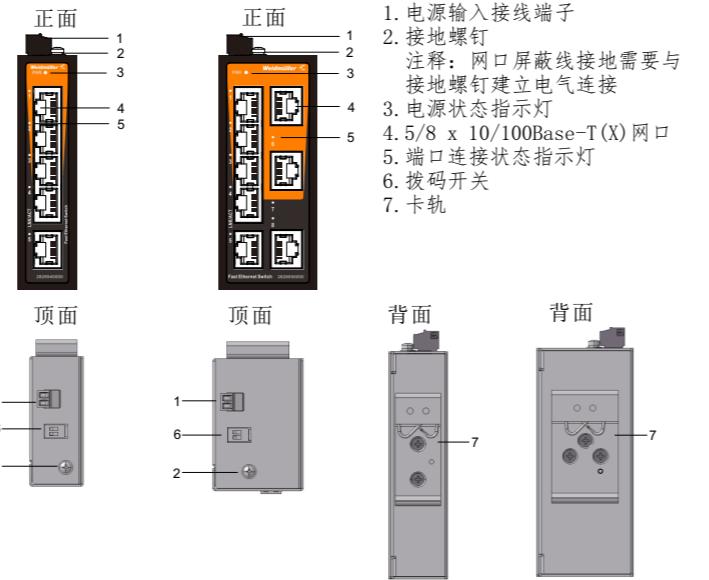
上海市裕通路100号 宝矿洲际商务中心25楼

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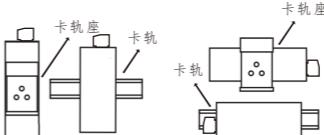
4. 面板指示说明

IE-SW-ELB-05-5TX IE-SW-ELB-08-8TX



7. 设备安装和卸载

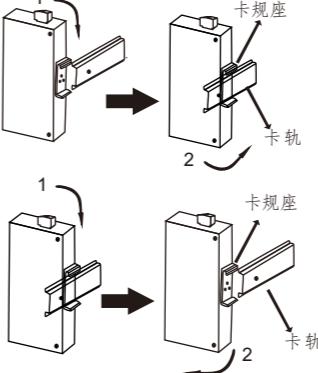
交换机支持水平和垂直安装，可以根据实际应用调整卡轨座的安装方向，满足不同的安装要求。



水平安装 垂直安装

安装步骤

第1步：选定设备的安装位置，确保安装空间足够且散热通畅。
第2步：将卡轨座的上部卡在DIN轨上，按箭头1方向将设备的上部稍微往下压，按箭头2方向将设备的前部朝安装面推，直到听到咔嗒声到位。



拆卸步骤

第1步：按箭头1方向下压设备，至设备下端脱离DIN轨。
第2步：按箭头2方向转动设备，至设备脱离DIN轨完成拆卸。

8. 交换机接地

警告：

- 接地有助于降低设备电磁干扰(EMI)造成的影响。
- 连接设备之前，接地螺钉和机柜接地处建立连接。
- 本产品建议安装在具有良好接地的安装面上，如金属控制柜。
- RJ45网口屏蔽线接地需要与接地螺钉建立电气连接。
- 接地线的截面积 $\geq 0.82\text{mm}^2$ ，接地电阻 $\leq 5\Omega$ 。

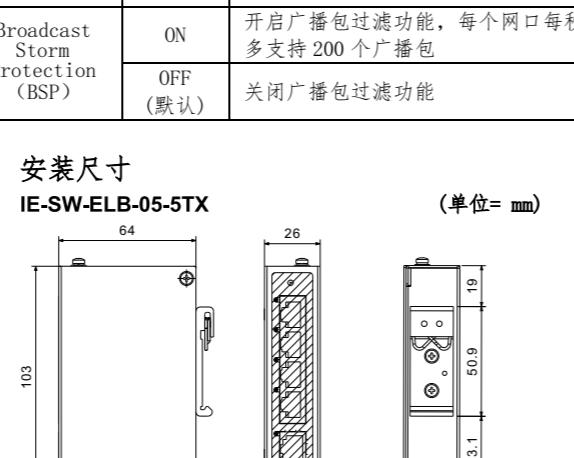
9. 供电电源接线

交换机电源通过2芯端子连接器连接。请依照设备上指示说明，正确连接电源线。

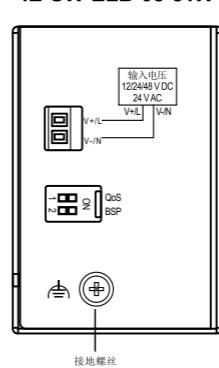
警告：

- 在连接电源线之前，请参阅以下指南。
- 可插拔电源输入接线端子适用于 $0.20\text{--}3.31\text{mm}^2$ 截面导线，扭矩值为 0.508Nm 。
- 电源线的额定工作温度应高于 105°C 。
- 推荐使用符合UL 61010-1或61010-2-201的SELV电源供电。

IE-SW-ELB-05-5TX

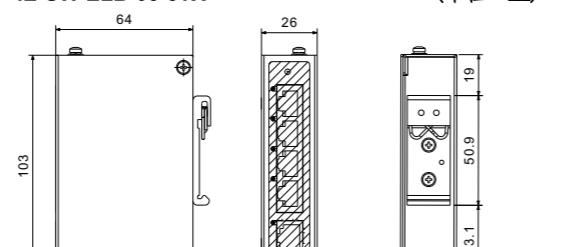


IE-SW-ELB-08-8TX

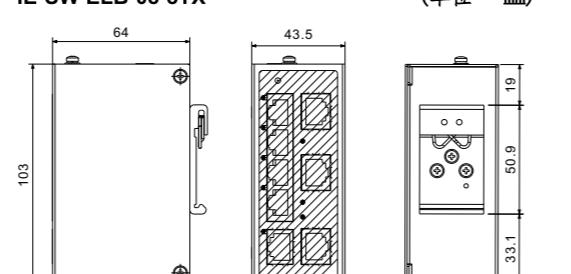


6. 安装尺寸

IE-SW-ELB-05-5TX



IE-SW-ELB-08-8TX



10. 网络连接

IE-SW-ELB-05-5TX 网口定义: 5x10/100Base-T(X)

IE-SW-ELB-08-8TX 网口定义: 8x10/100Base-T(X)

注释：请选择符合标准要求的线缆和水晶头，并避免信号受到其它信号的干扰。

10.1 10/100Base-T(X) RJ45 网口

每个RJ45网口独立支持端口传输速率自动协商，根据IEEE802.3标准自动识别连接设备端口传输速率。这意味着一些连接的以太网设备可以以10Mbps的传输速率运行，而其他节点则以100Mbps的传输速率同时运行。

同时以太网交换机支持MDI和MDI-X自动翻转功能，支持两种接线方案，参照下表接线定义：

10/100Base-T(X) RJ45 针脚定义

MDI 针脚定义	MDI-X 针脚定义	8 针 RJ45	
针脚	定义	针脚	
1	Tx+	1	Rx+
2	Tx-	2	Rx-
3	Rx+	3	Tx+
6	Rx-	6	Tx-

	关于“双工不匹配”情况下可能导致丢失数据包的说明 如果交换机自动协商端口连接到非自动协商设备，交换机将 其端口传输速率设置为与连接设备相同，但无法确定双方双 工模式是否一致。 为了正确传输，必须将非自动协商端口双工模式和自动协商 端口保持一致。
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11. LED 指示灯

面板指示灯定义：

LED	颜色	状态	描述
PWR	绿色	亮	设备供电工作正常
		灭	设备供电异常，或者未供电

LNK/ACT	绿色: 100Mbps	亮	端口连接正常
		灭	端口未正确建立连接

12. 产品规格

技术	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow Control IEEE 802.1p Class of Service
处理方式	存储转发
MAC 地址表	1K
数据包缓存	448 Kbit
接口说明	
RJ45 端口	10/100M自适应，全双工/半双工，MDI/MDI-X 自动翻转
LED 指示灯	PWR, LNK/ACT
电源	
工作电压	9.6~60VDC或18~30VAC
工作电流 (24 VDC)	IE-SW-ELB-05-5TX: 0.12A IE-SW-ELB-08-8TX: 0.13A
电源连接器	2芯可插拔端子，电源线截面积: 0.2~3.31mm ²
过载保护	支持
反向保护	支持
机械特性	
外壳	金属外壳，IP40防护等级
尺寸 (宽 x 高 x 深)	IE-SW-ELB-05-5TX: 26.0 x 103 x 64mm IE-SW-ELB-08-8TX: 43.5 x 103 x 64mm
重量	IE-SW-ELB-05-5TX: 145g IE-SW-ELB-08-8TX: 205g
安装方式	导轨式
工作环境	
工作温度	-10~60°C
存储温度	-40~85°C
工作湿度	5%~95% (无凝露)
工作海拔	≤2000m
污染度	2
安规认证	
安全标准	UL 61010-1; UL 61010-2-201 EN 55032, EN 55035, Class A, IEC 61000-4-2 ESD: 接触放电: 4kV; 空气放电: 8kV, IEC 61000-4-3 RS: 80MHz~1GHz: 3V/m, IEC 61000-4-4 EFT: 电源: 0.5kV; 端口: 1kV, IEC 61000-4-6 Surge: 电源: 0.5kV; 端口: 1kV, IEC 61000-4-27 CS: 3 Vrms
EMC	IEC 60068-2-27 IEC 60068-2-32 IEC 60068-2-6
冲击	IEC 60068-2-27
跌落	IEC 60068-2-32
振动	IEC 60068-2-6
平均无故障时间	IE-SW-ELB-05-5TX: 488, 236小时 IE-SW-ELB-08-8TX: 463, 836小时
依据标准	Telcordia SR332
保修期	5 年

请遵守注意事项正确使用产品，您可以在www.weidmueller.com/disposal查看更多说明。



Hardware Installation Guide

Unmanaged Fast Ethernet Switches

IE-SW-ELB-05-5TX (Part No.2828540000)
IE-SW-ELB-08-8TX (Part No.2828550000)

1. Introduction

Ethernet Switches from Weidmüller are designed with a very compact housing size and are fitted with a robust housing. To ensure reliable, error-free operation. And to prevent damage or injury, please read the operating instructions, all safety information provided in this document and any other safety information that were supplied with the product.

2. Safety notice

	Switch off the electrical power before removing the power connection!
	The device heats up during operation. Allow the unit to cool down or use protection gloves when carrying out any work.
	The device may only be connected to the supply voltage shown on the product label. Higher voltage than specified will destroy the device. The device must be supplied by a SELV source as defined in the Low Voltage Directive 2014/35/EU.
	Installation, commissioning and maintenance may only be performed by qualified electricians.
	Observe the operating instructions.
	<ul style="list-style-type: none"> Indoor use and pollution degree 2, it must be wiped with a dry cloth for clean up the device and label. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 60°C.

FCC compliance this device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Intended use

The device is intended for the realization of communication networks within an industrial environment, it is intended to be used in a restricted access location. The device may only be used within the scope of the specified technical data. The device is intended to be mounted to a well-grounded mounting surface, such as a metal panel. Any other use may result in unintentional malfunction and damage. Observing the documentation is part of the intended use.

Environmental conditions

This equipment is intended to be used in a restricted access location. When planning the installation site make sure that the ambient temperature during operation will not exceed the temperature given in the technical data. Also make sure that the air flow will not be compromised by other devices. Ensure that the mounted and wired device is not exposed to any mechanical stress.

3. Package Checklist

Your Ethernet Switch is shipped with the following items:

- Ethernet Switch
- Hardware Installation Guide (printed)

Contact Information

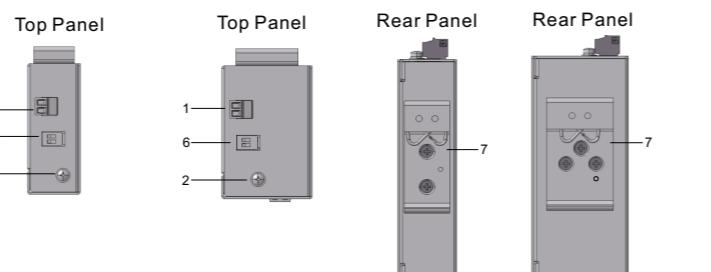
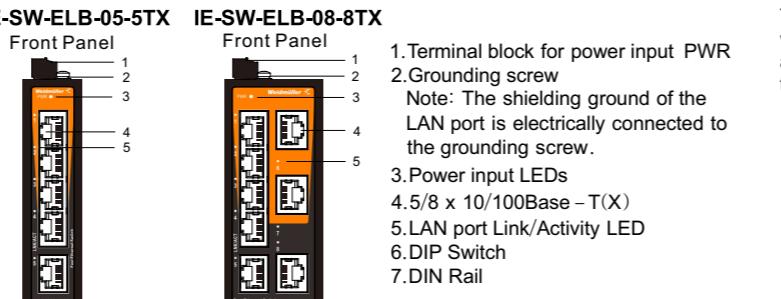
Weidmüller Interface GmbH&Co. KG

Klingenbergstraße 26, 32758 Detmold/Germany

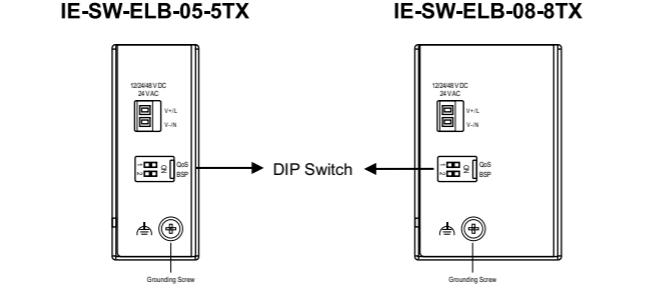
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 E-Mail weidmueller@weidmueller.com, Internet www.weidmueller.com

V1.1 2025-04-11

4. Panel Layouts

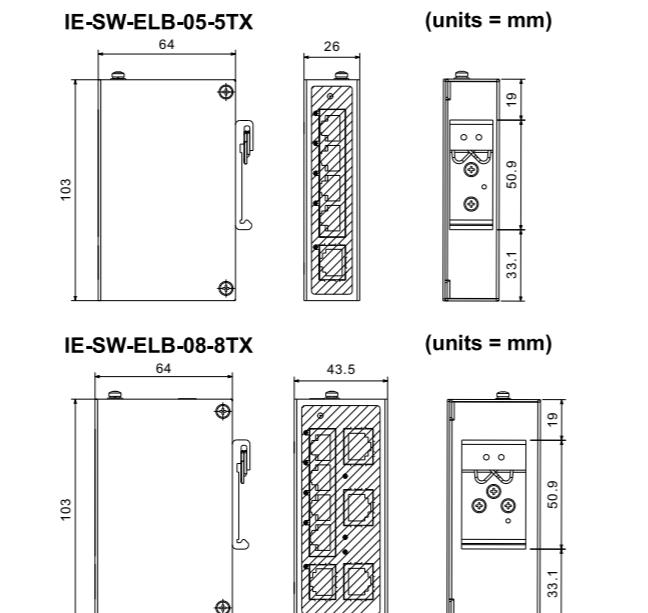


5. DIP Switch



DIP Switch	Setting	Description
Quality of Service (QoS)	ON (Default)	Enable the Quality of Service to handle packet priorities in two WRR queues. QoS and ToS/DSCP priority mapping matrix in each queue
	OFF	Disable the Quality of Service
Broadcast Storm Protection (BSP)	ON	Enables broadcast storm protection (only allow maximum of 200 broadcast packets per second) for each Ethernet port
	OFF (Default)	Disables the Broadcast Storm Protection

6. Mounting Dimensions



7. DIN-Rail Mounting

The switch supports horizontal and vertical installation. The DIN rail kit can be adjusted according to the actual application to meet different installation requirements.

Installation

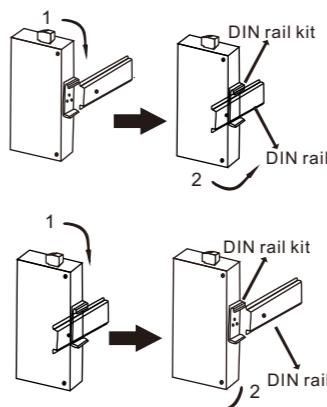
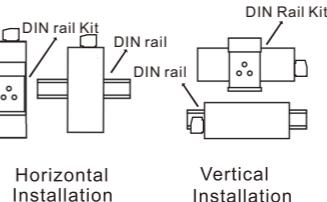
Step 1: Select the mounting position for the device and guarantee adequate space and heat dissipation.

Step 2: Clip the upper part of the rail holder to the DIN rail, push the upper part of the device down slightly in the direction of arrow 1, push the front of the module toward the mounting surface until it audibly snaps into place in the direction of arrow 2.

Uninstallation

Step 1: As shown in the following figure, press the device downward in the direction of arrow 1 until the bottom of the device is detached from the DIN rail.

Step 2: Rotate the device in the direction of arrow 2 until the device is removed from the DIN rail.



10/100Base-T(X) RJ45 Pinouts

MDI Port Pinouts	MDI-X Port Pinouts	8-pin RJ45
Pin	Signal	Pin
1	Tx+	1
2	Tx-	2
3	Rx+	3
6	Rx-	6
		Tx-

Note about possible loss of data packages in case of "Duplex mismatching"

If the switch's auto-negotiation port is connected to a non-negotiating device, then the switch will set its port transmission speed same as the connected device but is unable to correctly detect the duplex mode. As result the port is set to the correct speed but is using always the half duplex mode as required by the IEEE 802.3u standard in such cases. For correct transmission, the non-negotiating port must be set to half-duplex mode (speed can be either 10 Mbps or 100 Mbps, it always will be recognized automatically by an Auto-Negotiation Device).

11. LED Indicators

The front panel of the Ethernet Switch contains several LED indicators. The function of each LED is described in the table below.

LED	Color	Status	Description
PWR	Green	On	Power is being supplied to power input PWR
		Off	Power is not being supplied to power input PWR
LNK/ACT	Green:100Mbps	On	Port's link is active
		Off	Port's link is inactive
	Blinking		Transmitting data

12. Specifications

Technology	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow Control IEEE 802.1p for Class of Service
Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow Control IEEE 802.1p for Class of Service
Processing Type	Store and Forward
MAC Table size	1K
Packet buffer size	448 Kbit
Interface	
RJ45 Ports	10/100Base-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection
LED Indicators	PWR, LNK/ACT
Power	
Input Voltage	9.6~60VDC or 18~30VAC
Input Current @24 VDC	IE-SW-ELB-05-5TX: 0.12A IE-SW-ELB-08-8TX: 0.13A
Connection	One removable 2-pin terminal block, Wiring cable 0.2-3.31mm ²
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	IP40 protection, metal
Dimension (W x H x D)	IE-SW-ELB-05-5TX: 26.0x103x64 mm IE-SW-ELB-08-8TX: 43.5x103x64 mm
Weight	IE-SW-ELB-05-5TX: 145 g IE-SW-ELB-08-8TX: 205 g
Installation	DIN-rail
Environmental conditions	
Operating Temperature	-10 to 60°C
Storage Temperature	-40 to 85°C
Ambient Relative Humidity	5% to 95% (non-condensing)
Altitude	up to 2000 m
Pollution Degree	2
Regulatory Approvals	
Safety	UL 61010-1; UL 61010-2-201 EN 55032, EN 55035, Class A IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz~1 Ghz: 3 V/m, IEC 61000-4-4 EFT: Power:0.5 kV; Signal:0.5 kV, IEC 61000-4-5 Surge: Power:0.5 kV; Signal:1 kV, IEC 61000-4-6 CS: 3 Vrms
EMC	
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF	
Time	IE-SW-ELB-05-5TX: 488,236 hrs IE-SW-ELB-08-8TX: 463,836 hrs
Database	Telcordia SR332
Warranty	
Time Period	5 years
Technology	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow Control IEEE 802.1p for Class of Service
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Input Current @24 VDC	IE-SW-ELB-05-5TX: 0.12A IE-SW-ELB-08-8TX: 0.13A
Connection	One removable 2-pin terminal block, Wiring cable 0.2-3.31mm ²
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	IP40 protection, metal
Dimension (W x H x D)	IE-SW-ELB-05-5TX: 26.0x103x64 mm IE-SW-ELB-08-8TX: 43.5x103x64 mm
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MTBF	
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Database	Telcordia SR332
Warranty	
Time Period	5 years

Observe the notes for proper disposal of the product.
You can find the notes here: www.weidmueller.com/disposal.

